U.S. Department of Energy's
Office of Science

Theory and Computing Program

OFES Budget Planning Meeting

Office of Fusion Energy Sciences
Excellent Science Attractive Energy

www.ofes.fusion.doe.gov

Curt Bolton and Theory Team

March 14-15, 2006

U.S. Department of Energy

Office of Science

Theory Initiatives

- Purchase of computers (UCLA and MIT in FY06, plan to continue in FY07)
- FSP process resulted in two edge efforts (one funded out of the base program) and one MHD-RF
- Ongoing competition to start a Collaboratory and a Framework effort in partnership with OASCR
- OASCR is also planning to fund some Scientific Application Partnerships (SAPs) in support of ongoing SciDAC/FSP projects

U.S. Department of Energy

Office of Science

Results of Grant Reviews

	FY 2002	FY 2003	FY 2004	FY 2005	FY2006
# Applications Received	48	36	39	22	27
# Applications Highly Rated	23	18	26	10	15
# Grants Funded	10	8 (+3)	19	10	11

U.S. Department of Energy

Office of Science

Theory Solicitation Updates

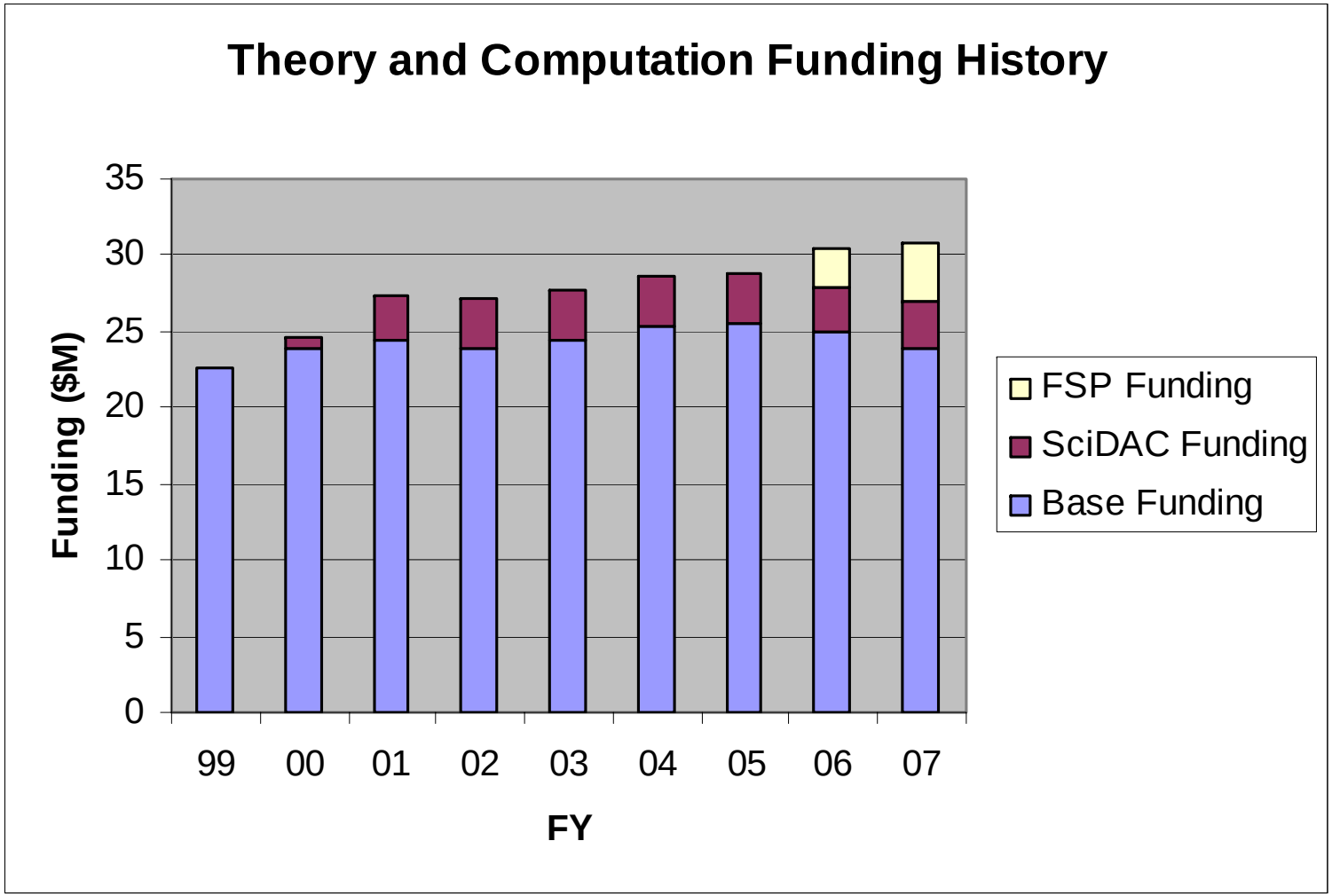
In response to COV recommendations, we have updated our annual Theory Notice to include:

- A question under the scientific / technical merit criterion on plans to validate theoretical predictions with experimental results, where appropriate
- A new criterion for renewal applications on the performance under the existing award (progress toward goals, dissemination of results to broader community, impact of research on fusion program, etc.)
- Applications from large groups proposing work in multiple areas should be structured in a way that facilitates separate reviewing
- A new rating scale from 1-10 with updated language for each rating category

U.S. Department of Energy

Office of Science

Eight-Year Budget History



U.S. Department of Energy

Office of Science

High Performance Computing Resources

- The OFES NERSC resources increased by 18% in AY06 due to the addition of the *Bassi* cluster
- Requests for computer time still exceed available resources by a factor of 2
- In AY06, select fusion projects have access to the Cray X1E and XT3 computers at the ORNL's Leadership Computing Facility (LCF)
- Two fusion projects received computer allocations under **INCITE**, the first time since this program's inception

U.S. Department of Energy

Office of Science

ITG / ETG Benchmark Exercise

- In FY06, OFES initiated a benchmark activity to help our community resolve the issue of discrete particle noise in PIC simulations
- An additional goal of this effort is to help improve communication among OFES-funded researchers in the critical area of gyrokinetic simulations of plasma turbulence